

LIFE HISTORIES OF NORTH AMERICAN GEOMETRIDAE.—VI.

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Pernoptilota fluviata Hüb. This larva has been described by European authors (quoted in Packard, Mon. Geom., pp. 78, 564, and by Hofmann, Raup. gross Sch. Eur., p. 241), but I find no original descriptions in American literature.

Egg. Rounded elliptical, flattened above and below; one end depressed, the other a little flattened, not truncate. Surface with flattened areas, forming a many-sided polyhedron, the cell areas scarcely concave, rounded hexagonal. Shining pale greenish yellow. Size $.6 \times .4 \times .3$ mm.

Stage I. Head rounded, sordid luteous, dark; width about .3 mm. Body rather thick, smooth, of a sordid brownish, without marks, rather dark and somewhat transparent. Feet pale, setae obscure. After feeding the larvae appear green, but dark and sordid, becoming more translucent with growth, the thorax and joints to 13 only brownish. The larvae rest in a curious attitude, upright with the distal half curled in a spiral.

Stage II. Head rounded, slightly bilobed, with high clypeus; pale brown; setae short and stiff; width .4 mm. Body long and slender, cylindrical, smooth, feet of joint 4 projecting, cervical shield a little angularly elevated. All pale brown, not shining, translucent, with five narrow dark brown lines on the dorsum (dorsal, addorsal and subdorsal). Setae small, glandular tipped, pale; tubercles colorless, moderate. The food shows green and renders the dorsal lines obscure.

Stage III. Head rounded, sordid luteous, two vertical shades composed of brown dots extending up the face of each lobe; ocelli black; width about .7 mm. Body translucent, slightly yellowish, green from the food; dorsal, addorsal and subdorsal lines, narrow, wavy and broken, and traces of a stigmatal line, distinct centrally on the segments; spiracles

brown shaded and subventral spots about the tubercles, giving a superficial resemblance to broken transverse bands. Base of thoracic feet and a band on the front of the foot of joint 10 dark brown; feet pale; skin smooth, not shiny. Setae and tubercles very small and obscure.

Stage IV. Head pale brown, thickly dotted with dark brown; a diffuse white stripe on the face of each lobe widening above; apex of clypeus brown; width 1.2 mm. Body light green on the ventral half, almost without marks, only traces of longitudinal lines; dorsum darker green, with geminate dorsal, addorsal and subdorsal whitish pulverulent lines, separated, and the subdorsal edged below by brown shadings, which are distinct intersegmentally and faint in the centers of the segments, nearly absent and broken into spots at the extremities. Abdominal feet strongly lined with dark brown, especially the foot of joint 10 in front; thoracic feet pale; spiracles black ringed; setae short, black, with enlarged pale tips; tubercles whitish, small; iii before the upper corner of the spiracle, iv opposite the lower corner, v before, vi below the spiracle subventrally. The larvae still rest in a half spiral.

In the brown form the whole dorsum is heavily marked with dark brown, leaving diamond shaped intersegmental marks of pale brown with brown central dots, the lateral margin of the brown wavy. Region below spiracles pale brown, scarcely mottled. Some examples are intermediate between these two forms.

Larvae from Bellport, Long Island, N. Y. Eggs July 12th, mature larvae August 2nd and imagoes again on August 12th.

The larvae fed on *Polygonum* and another common garden weed not determined.